

AB-X29NXXX Series PECL/LVPECL UHF XO

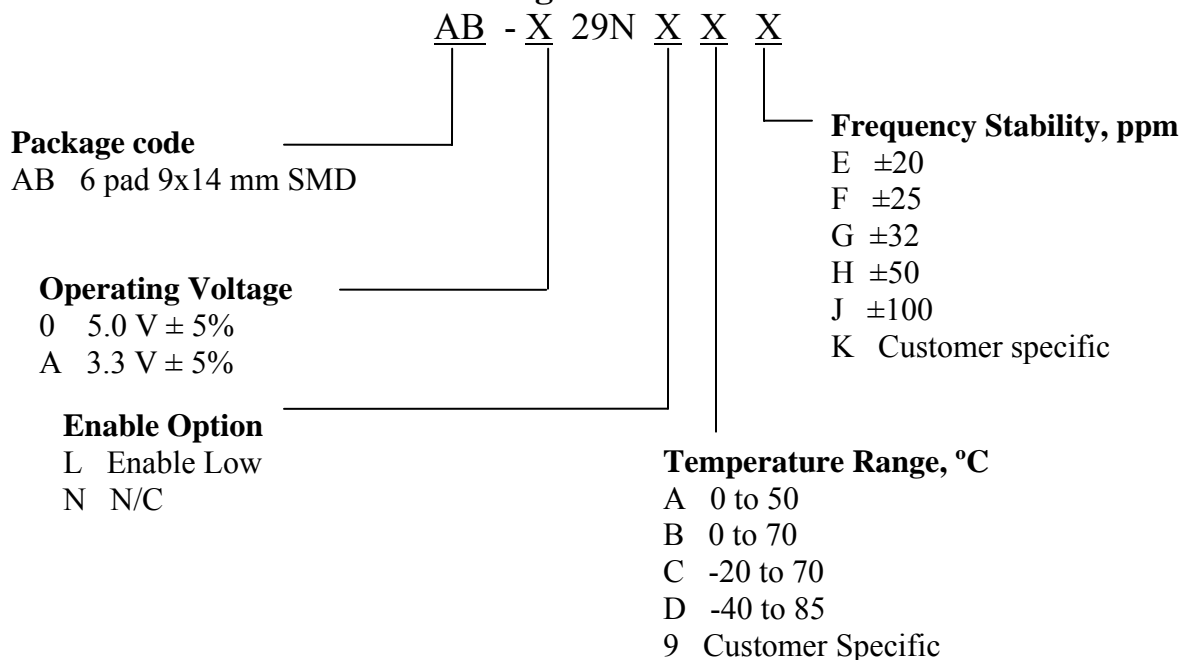
Description

The **AB-X29NXXX Series** of crystal oscillators (XO) provides ultra high frequency with PECL/LVPECL complementary outputs. The outputs can be disabled for test automation or combining multiple clocks. The device is based on low noise analog harmonic frequency multiplication, providing exceptionally low Phase Noise and Jitter. It's packaged in a miniature, FR-4 based 9x14 mm SMD package

Applications and Features

- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Extremely Low Phase Noise and Jitter
- Frequency Range to 1,000 MHz
- RoHS compliant, Lead Free Construction
- SONET ± 20 ppm overall stability available
- High Shock Resistance, to 1.000 G

Creating a Part Number



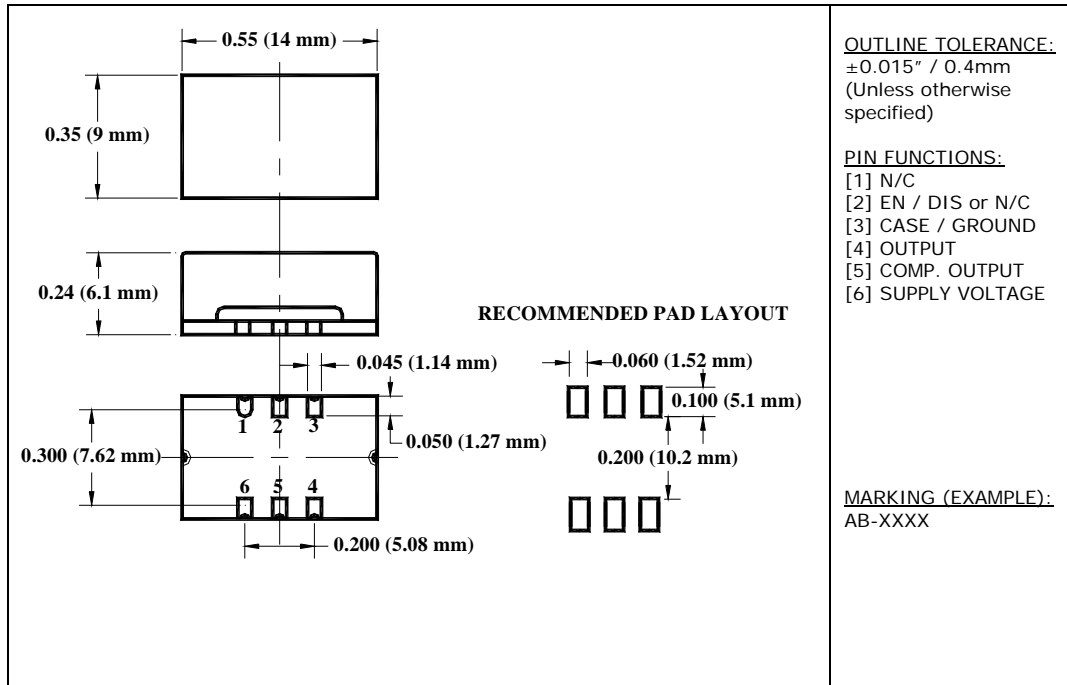
**FREQUENCY
CONTROLS, INC.**

357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881

Email: nelsales@nelfc.com www.nelfc.com

AB-X29NXXX Series

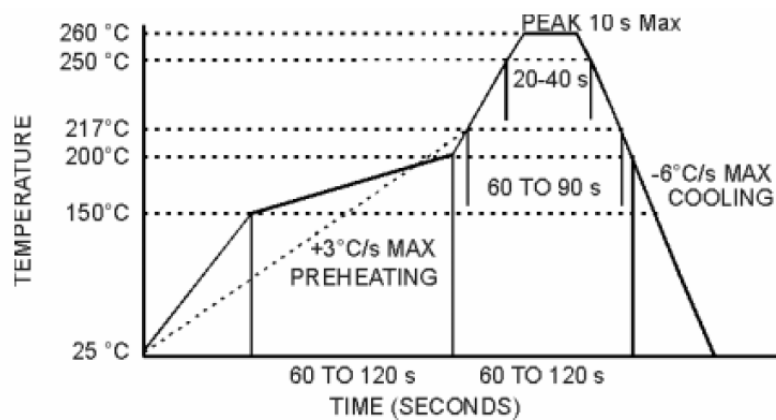
Drawing Specification



Environmental and Mechanical Characteristics

| | |
|-----------------------|--|
| Operating temp. range | see part # table |
| Mechanical Shock | Per MIL-STD-202, Method 213, Cond. A |
| Thermal Shock | Per MIL-STD-883, Method 1011, Cond. A |
| Vibration | Per MIL-STD-883, Method 2007, Cond. A |
| Hermetic Seal | Leak rate less than 1×10^{-8} atm.cc/s of helium, crystal only. |
| Soldering conditions | See MAX reflow profile below |

MAX Reflow Profile



**FREQUENCY
 CONTROLS, INC.**

357 Beloit Street, P.O. Box 457, Burlington, WI 53105-0457 U.S.A. Phone 262/763-3591 FAX 262/763-2881

Email: nelsales@nelfc.com www.nelfc.com

AB-X29NXXX Series

Absolute Maximum Ratings

| Parameter | Symbol | Value | Unit |
|-----------------------------|---------|-------------|------|
| Operating Temperature Range | To | -40 to +85 | °C |
| Storage Temperature Range | Tst | -50 to +90 | °C |
| Supply Voltage | Vcc | -0.5 to 5.5 | V |
| Enable/Disable Voltage | Ven/dis | 0 to Vcc | V |

Electrical Parameters

| Parameter | Symb | Conditions, Note | MIN | TYP | MAX | Unit |
|--------------------------|----------------------------|--|---|--|--|--------|
| Nominal Frequency | Fo | | 200 | | 1,000 | MHz |
| Supply Voltage | Vcc | Code 0 Code A | 4.75 3.135 | 5.0 3.3 | 5.25 3.465 | V |
| Supply current | Icc | | | 60 | 80 | mA |
| Output Logic Type | | | | PECL/ LVPECL | | |
| Load | | Output to Vcc-2V, or Thevenin Equivalent | | 50 | | Ohm |
| Output Levels | Voh Vol | overall | Vcc-1.025 Vcc-1.620 | | | V |
| Duty Cycle (Symmetry) | | At 50% of output voltage swing | 45/55 | 50/50 | 55/45 | % |
| Rise/Fall Time | Tr/Tf | 20 to 80, 80 to 20 % | | 0.5 | 0.7 | ns |
| Jitter | Integrated | J Integrated from Phase Noise, 12 KHz to 20 MHz , RMS 100Hz to 80KHz,RMS 50 KHz to 80 MHz | | 0.1 | 0.2 | ps |
| | | | | | 1.0 | ps |
| | | | | 0.3 | | ps |
| | Wavecrest characterized | Random period, | | 2.5 | | ps |
| | | Accumul., pk-to-pk | | 25 | | ps |
| | | Determin. | | 1 | | ps |
| Phase Noise | f(Δf) | 622.080MHz APR 50 ppm or less @ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz | | -60 -90 -118 -135 -140 -145 | -55 -85 -113 -130 -135 -140 | dBc/Hz |
| Sub-harmonics | | At 622.08 MHz | | -50 | -46 | dBc |
| Frequency Stability | ΔF/F | Overall, including initial calibration, temperature, aging 10 years, shock and vibration | | | From ±20, see table for part number | ppm |
| Enable | | Pin 2 = Low, 0 to Vcc- 1.62 V | Enabled | | | V |
| Disable | | Pin 2 = High, Vcc-1.025 V to Vcc | Disabled, Pin4 = Logic "1", Pin5 = Logic "0" | | | V |

